

Work Order ID 84670

May 30/12 3:47:40 PM

Duplicate

84670

Page 1

Item ID: D350-748-241TRN

Accept

N900040100

Setup

Start

NS1

Revision ID:

Item Name: Crosstube Turning Detail

Stop

NS2

Start Date: 17/05/2012 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 22/05/2012 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals: Process Plan: ML5

Date: 12/05/13 Tooling:

Date:

Run

Start

NR1

QC:

Date: SPC (Y/N):

Date:

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D350-748-241	F	0.00							
100 *100*	MORI SEIKI CNC LATHE LARGE	0.00							
Mori Seiki Mori Seiki CNC Lathe Large	Memo	0.00							
	1-Fill tube with sand & install plugs on both ends as per Folio FA647								
	2-Turn first side as per Folio FA647								
	3-File transition lines smooth.								
	FOLIO REV: _____								
	DWG REV: _____								
110 *110*	QC1- Inspect dimensions to dimension sheet	0.00							
QC Quality Control	Memo	0.00							

19MNL
12/06/16

19MNL
12/06/16

W/O:		WORK ORDER CHANGES							
DATE	STEP	PROCEDURE CHANGE			By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector	
			Initial Chief Eng	Action Description Chief Eng	Sign & Date				

NOTE: Date & initial all entries

Work Order ID 84670

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Page 2

Item ID: D350-748-241TRN

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Start Date: 17/05/2012 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 22/05/2012 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals:	Process Plan:	Date:	Tooling:	Date:	Run	Start	*NR1*
	QC:	Date:	SPC (Y/N):	Date:	Stop		*NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120 *120* Mori Seiki	MORI SEIKI CNC LATHE LARGE	0.00							
Mori Seiki CNC Lathe Large	Memo 1-Turn second side as per Folio FA647 2- File transition lines smooth. 3-Scribe part # as per Dwg D350-748-241 FOLIO REV: _____ DWG REV: _____	0.00							
130 *130* QC Quality Control	QC1- Inspect dimensions to dimension sheet	0.00							
	Memo	0.00							
140 *140* QC Quality Control	QC8- Inspect parts - second check	0.00							
	Memo	0.00							

 2-6-20

/mml
12/06/16

/mml
12/06/16

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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NOTE: Date & initial all entries

Work Order ID 84670***84670***

May-30-12 3:47:40 PM

Page 3

Item ID: D350-748-241TRN**Accept*****N900040100*****Setup****Start** ***NS1*****Revision ID:****Stop*****NS2*****Item Name:** Crosstube Turning Detail**Start Date:** 17/05/2012 **Start Qty:** 1.00***1*****Cust Item ID:****Required Date:** 22/05/2012 **Req'd Qty:** 1.00***1*****Customer:****Reference:****Approvals:** **Process Plan:****Date:****Tooling:****Date:****Run****Start*****NR1*****QC:****Date:****SPC (Y/N):****Date:****Stop*****NR2*****Sequence ID/
Work Center ID****Operation
Description****Set Up/
Run Hours****Tool ID****Tool #****Plan
Code****Accept
Qty****Reject
Qty****Reject
Number****Insp.
Stamp**

150

150

Crosstubes

Large Fab

0.00

Crosstubes

Memo

0.00

1-DRILL HOLES FOR HEAT TREAT USING DT9806(HOLES MUST BE
ALIGNED ON SAME LINE ON BOTH CUFFS)

- De 12/07/12

2-Grind machining marks

> Rm

12-7-12

160

160

Outsource1

Outsource process - Heat Treat

0.00

Outsource process - Heat Treat

Memo

0.00

Issue P/O: 17555
Heat Treat to min 180 KSI As per Dwg D350-748-241
Sand Blast tube after Heat Treat
Possible Supplier: Vac Aero
Ensure Certificate of Conformity is attached

R12-07-27

PJO

170

170

Packaging

Receive & Inspect for Damage & Mat'l Certs

0.00

Packaging

Memo

0.00

Ensure certificate of conformity is attached

IX

80
12-8-21

12/14/12

WO: 84670

WORK ORDER CHANGES

DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
		See Part WO 12-1980					

Part No: D350-748-241TRN PAR #: _____ Fault Category: Supplier NCR: Yes No DQA: Not Date: 12/11/02
 Resolution: _____ Disposition: RTV QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
12-09-21	100	Supplier did not send last on original supplier PO 17555	✓ 12-09-21	Send for sandblasting to remove scale only Issue PO 17976 JMI	✓ 12/10/21		✓ 12-10-21	DAS 16 8-33 12/11/02
				Receive & Inspect	✓ 12-11-01			

NOTE: Date & initial all entries

Work Order ID 84670

May-30-12 3:47:40 PM

84670

Page 4

Item ID: D350-748-241TRN

Accept

N900040100

Setup

Start

NS1**Revision ID:****Item Name:** Crosstube Turning Detail

Stop

NS2**Start Date:** 17/05/2012 **Start Qty:** 1.00***1*****Cust Item ID:****Required Date:** 22/05/2012 **Req'd Qty:** 1.00***1*****Customer:****Reference:****Approvals:** **Process Plan:****Date:****Tooling:****Date:**

Run

Start

NR1**QC:****Date:****SPC (Y/N):****Date:**

Stop

NR2**Sequence ID/
Work Center ID****Operation
Description****Set Up/
Run Hours****Tool ID****Tool #****Plan
Code****Accept
Qty****Reject
Qty****Reject
Number****Insp.
Stamp**

180

180

QC

Quality Control

QC6- Inspect dimensions to drawing

0.00

DAS
16
9-8

12/10/29

190

190

Packaging

Packaging

0.00

12-11-18

Packaging

Memo

0.00

Identify and stock in kanban rack
Location: LG

200

200

QC

Quality Control

QC21- Final Inspection - Work Order Release

0.00

Memo

0.00

12/10/31 D

*12/10/30
12/10/30*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	89670
Description: Crosstube Assembly (AS350/355 High Aft)	Part Number:	D350-748-241
Inspection Dwg: D350-748-241 Rev: F		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.240	+0.005/-0.000	2.245	/	vern	CNC-08
	2.180	+0.005/-0.000	2.185	/		
	2.180	+0.005/-0.000	2.184	/	/	
	2.208	+0.005/-0.000	2.213	/		
	2.234	+0.005/-0.000	2.239	/		
	2.253	+0.005/-0.000	2.256	/		
	2.272	+0.005/-0.000	2.277	/		
	2.299	+0.005/-0.000	2.303	/		
	0.063	+/-0.010	.063	/	vern	CNC-08
	4.26	+/-0.030	4.26	/	"	
	R0.063	+/-0.010	.063	/	R6	"
	R0.50	+/-0.030	.500	/	"	
	2.240	+0.005/-0.000	2.246-2043	/	vern	CNC-08
	2.180	+0.005/-0.000	2.185	/	/	
	2.180	+0.005/-0.000	2.184	/	/	
SIDE B	2.208	+0.005/-0.000	2.211	/	/	
	2.234	+0.005/-0.000	2.238	/		
	2.253	+0.005/-0.000	2.258	/		
	2.272	+0.005/-0.000	2.277	/		
	2.299	+0.005/-0.000	2.303	/		
	0.063	+/-0.010	.063	/	vern	CNC-08
	4.26	+/-0.030	4.26	/	"	
	R0.063	+/-0.010	.063	/	R6	"
	R0.50	+/-0.030	.500	/	"	
	122.70	+/-0.060	122.700	/	Tape	LG-15

Measured by:	<i>John L</i>	Audited by:	<i>John L</i>	Preliminary Approval:	
Date:	12/06/08	Date:	12/06/08	Date:	

Rev	Date	Change	Revised by	Approved
A	07.01.17	New Issue (P/O D350-748-201)	KJ/JLM	
B	12.02.02	Dwg Rev updated	KJ	<i>John L</i>

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD

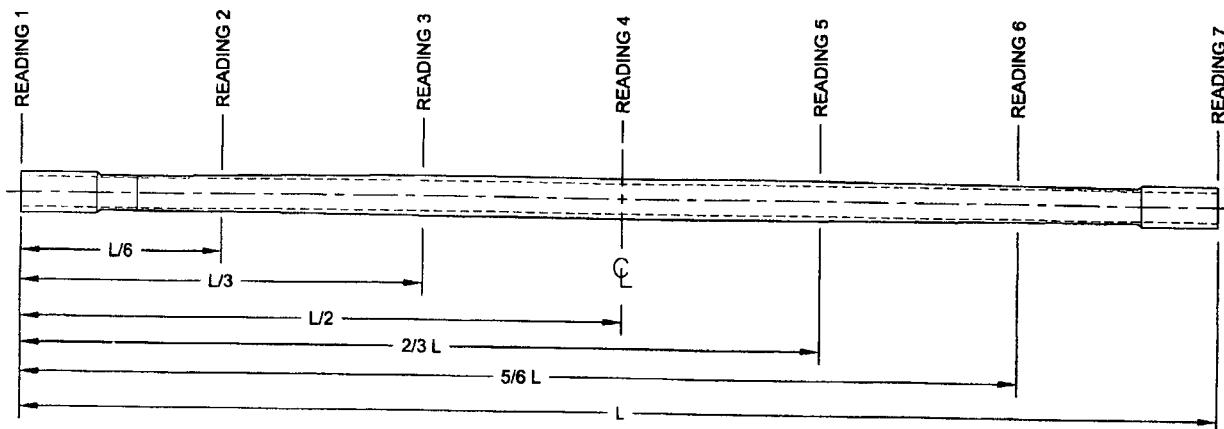
Work Order: 84670

Description: Crosstube Assembly (AS350/355 High Aft)

Part Number: D350-748-241

Inspection Dwg: D350-748-241 Rev: F

Page 2 of 2

WALL THICKNESS MEASUREMENT

Location	WALL THICKNESS MEASUREMENT (IN)				Deviation Δw (max-min)	TOLERANCE
	w1	w2	w3	w4		
READING 1 L= 0"	.129	.133	.131	.126	.007	0.030"
READING 2 L= 14	.111	.098	.098	.109	.011	
READING 3 L= 28	.129	.129	.137	.146	.011	
READING 4 L= 61	.154	.156	.160	.159	.006	
READING 5 L= 75	.142	.129	.128	.135	.017	
READING 6 L= 99	.119	.089	.095	.117	.024	
READING 7 L= 113	.132	.129	.130	.132	.003	

Calibration Result

Actual Block Thickness: _____

Sitescan 250 Measured Thickness: _____

Measured by:	<i>Amornit</i>	Audited by:	<i>[Signature]</i>	Preliminary Approval:	<i>[Signature]</i>
Date:	12/07/11	Date:	12-07-20	Date:	

Rev	Date	Change	Revised by	Approved
A	07.01.17	New Issue (P/O D350-748-201)	KJ/JLM	
B	12.02.02	Dwg Rev updated	KJ	
C	12.06.04	Wall thickness form added	KJ	<i>[Signature]</i>

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Item	Qty	Part Number	Description
1	X	D350-748-241	CROSSTUBE ASSEMBLY (AS 350/355 HI AFT)
2	1	D6015-125	CROSSTUBE (OR D6018-125)
3	2	D3502-1	SUPPORT
4	2	D2856-400-710	ABRASION STRIP
5	1	AELS-1032-225	INSERT
6	1	NAS1149D0363J	WASHER (OR AN960JD10)
7	2	MS21920-20	CLAMP (PER DART SPEC. M-MS21920-20)
8	1	MS27039-1-10	SCREW

GENERAL NOTES:

1) MATERIAL: MANUFACTURED FROM D6015-125 OR D6018-125
FINISHED LENGTH = 122.700±0.06

2) FINISH: MAGNETIC PARTICLE INSPECT PER DART QSI 038 4.2
CADMIUM PLATE PER AMS-QQ-P-416B, CLASS 1, TYPE II
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2

3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.

4) UNITS: INCHES UNLESS OTHERWISE NOTED.

5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX

6) IDENTIFICATION: DART PART NUMBER "D350-748-241" AND BATCH NUMBER ON INSIDE OF CUFF
PER DART QSI 044 6.4 (VIBRATING STYLUS)

7) WEIGHT: 29.85 lbs

8) PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR Ø0.297 HOLE.

9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT ALL EDGES FROM MACHINING
LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER
BENDING.

10) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES. MAXIMUM TUBE FLATTENING DUE TO
BENDING IS 6% BASED ON O.D.

11) HEAT TREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS 2759-1C AFTER TURNING. ACCEPTABLE TO
VERIFY TENSILE STRENGTH BY HARDNESS TEST PER ASTM E18 TO 40-45 HRC.

12) INSTALL D2856-400-710 ABRASION STRIPS WITH A GAP ON BOTTOM SIDE OF CROSSTUBE,
CENTERED OPPOSITE D3502-1 SUPPORT. PER QSI 035.

13) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE
OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES,
NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY.
CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE
MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO
CRACKING/CHIPPING/GROOVES.

14) TORQUE CLAMPS 60 TO 80 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT
NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

15) MAX TWIST AFTER BENDING: WITH XTUBE LAYED FLAT ON SURFACE, THE DIFFERENCE BETWEEN
CUFF HEIGHTS FROM THE SURFACE MAY BE NO LARGER THAN 0.25 (ZN C1-3).

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER

NO. 84670 MJ
12/05/31

RELEASED
2011-01-08
MR

F	ADD HRC TEST OPTION (B8-1) PER PAR 09-040, ADD TWIST LIMIT (A8-1, C1-3), ADD D6015-125 OPTION (C8-1), STOCK DIM NOW MACHINED (D1-4)	CP	10.11.23
E	REVISE GENERAL NOTES: UPDATE TO CURRENT STANDARDS, RELOCATED FLAG #6 PER PAR 08-046 (ZN A8-3); ADD TOLERANCES (ZN C6-3, D2-3)	RF	09.09.30
D	MAG. PARTICLE AND CAD PLATE AS MFD.	CP	06.10.31
C	ADD CAD PLATING	CP	06.08.14
B	ADD D6018-125 & PRIME AND PAINT	CP	06.06.30
A	NEW ISSUE	CP	06.03.31
REV.	DESCRIPTION	BY	DATE
DESIGN	97	DART AEROSPACE LTD	
DRAWN	97	HAWKESBURY, ONTARIO, CANADA	
CHECKED	1	REV. F	
MFG. APPR.	EJ	DRAWING NO.	D350-748-241
APPROVED	#	SHEET 1 OF 4	
DE APPR.	#	TITLE	CROSSTUBE (AS 350/355 HI AFT) NTS
DATE	10.11.23	SCALE	

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W/O:

WORK ORDER CHANGES

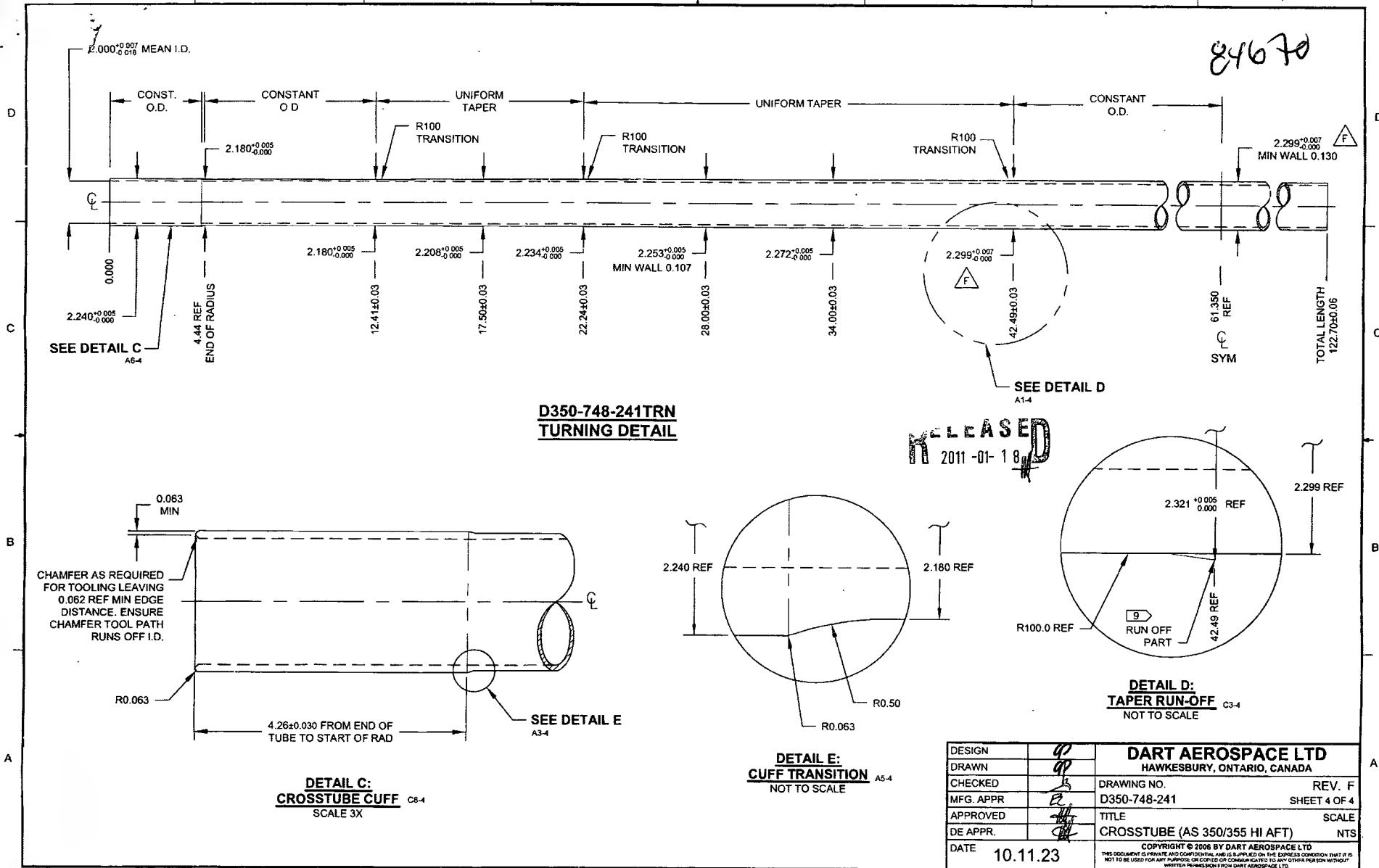
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



DETAIL C:
CROSSTUBE CUFF C8-4
SCALE 3X

DETAIL E:
CUFF TRANSITION A5-4
NOT TO SCALE

DETAIL D:
TAPER RUN-OFF C3-
NOT TO SCALE

DESIGN	99	DART AEROSPACE LTD		
DRAWN	99	HAWKESBURY, ONTARIO, CANADA		
CHECKED		DRAWING NO.	REV. F	
MFG. APPR.	EZ	D350-748-241	SHEET 4 OF 4	
APPROVED		TITLE	SCALE	
DE APPR.		CROSSTUBE (AS 350/355 HI AFT)		
DATE	10.11.23	COPYRIGHT © 2006 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE, OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT THE WRITTEN CONSENT OF DART AEROSPACE LTD.		

W/O:		WORK ORDER CHANGES					
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

METLAB
1000 E. MERMAID LANE
WYNDMOOR, PA 19038

Sales Order
Aug 1,

Voice: 215-233-2600
Fax: 215-233-5653

Sold To:
DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7

Ship To:
DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7

Customer ID	PO Number	Payment Terms
DARA	PO17555	Net 30 Days
Ship Via	Process	
R & L CARRIER	HT	

Quantity	Item	Description	Total Shipped	This Shipp
1.00 EACH	D350-748-241TRN			
	HEAT TREAT TO MIN 180 KSI (MIL-T-6736 OR			
	AMS 2759-IC)			
	SANDBLAST AFTER HT			
1.00 EACH	D350-748-241TRN			
	HEAT TREAT TO MIN 180 KSI (MIL-T-6736 OR			
	AMS 2759-IC)			
	SANDBLAST AFTER HT			
1.00 EACH	D350-748-241TRN			
	HEAT TREAT TO MIN 180 KSI (MIL-T-6736 OR			
	AMS 2759-IC)			
	SANDBLAST AFTER HT			
1.00 EACH	D350-748-241TRN			
	HEAT TREAT TO MIN 180 KSI (MIL-T-6736 OR			
	AMS 2759-IC)			
	SANDBLAST AFTER HT			
1.00 EACH	D350-748-241TRN			
	HEAT TREAT TO MIN 180 KSI (MIL-T-6736 OR			
	AMS 2759-IC)			
	SANDBLAST AFTER HT			

COMMENTS

SHIPPED BY, SIGNATURE
METLAB

DATE

RECEIVED BY, SIGNATURE
DART AEROSPACE

DATE

METLAB
1000 E. MERMAID LANE
WYNDMOOR, PA 19038

Voice: 215-233-2600
Fax: 215-233-5653

Sold To:
DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7

Ship To:
DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7

Customer ID	PO Number	Payment Terms
DARA	PO17555	Net 30 Days
Ship Via		Process
R & L CARRIER		

Quantity	Item	Description	Total Shipped	This Shipment
1.00 EACH	D350-748-241TRN			
	HEAT TREAT TO MIN 180 KSI (MIL-T-6736 OR			
	AMS 2759-IC)			
	SANDBLAST AFTER HT			
1.00 EACH	D350-748-241TRN			
	HEAT TREAT TO MIN 180 KSI (MIL-T-6736 OR			
	AMS 2759-IC)			
	SANDBLAST AFTER HT			
1.00 EACH	D350-748-241TRN			
	HEAT TREAT TO MIN 180 KSI (MIL-T-6736 OR			
	AMS 2759-IC)			
	SANDBLAST AFTER HT			
1.00 EACH	D350-748-241TRN			
	HEAT TREAT TO MIN 180 KSI (MIL-T-6736 OR			
	AMS 2759-IC)			
	SANDBLAST AFTER HT			
1.00 EACH	D350-748-241TRN			
	HEAT TREAT TO MIN 180 KSI (MIL-T-6736 OR			
	AMS 2759-IC)			
	SANDBLAST AFTER HT			

COMMENTS

SHIPPED BY, SIGNATURE
METLAB

DATE

RECEIVED BY, SIGNATURE
DART AEROSPACE

DATE



1000 E. Mermaid La., Wyndmoor (Phila.) PA 19038-8093
Tel. (215) 233-2600 Fax (215) 233-5653

Invoice

Invoice Num

0114

Invoice D

Aug 16, 2012

Sold To:

DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7

Ship To:

DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7

Customer ID	Customer PO	Payment Terms	
DARA	PO17555	Net 30 Days	
Shop Order No.	Shipping Method	Ship Date	Due Date
73276	R & L CARRIER	8/16/12	9/15/12
Quantity	Item	Description	Unit Price
1 EACH	D350-748-241TRN HEAT TREAT TO MIN 180 KSI (MIL-T-6736 OR AMS 2759-IC) SANDBLAST AFTER HT	205.000	205.000
1 EACH	D350-748-241TRN HEAT TREAT TO MIN 180 KSI (MIL-T-6736 OR AMS 2759-IC) SANDBLAST AFTER HT	205.000	205.000
1 EACH	D350-748-241TRN HEAT TREAT TO MIN 180 KSI (MIL-T-6736 OR AMS 2759-IC) SANDBLAST AFTER HT	205.000	205.000
1 EACH	D350-748-241TRN HEAT TREAT TO MIN 180 KSI (MIL-T-6736 OR AMS 2759-IC) SANDBLAST AFTER HT	205.000	205.000
1 EACH	D350-748-241TRN HEAT TREAT TO MIN 180 KSI (MIL-T-6736 OR AMS 2759-IC) SANDBLAST AFTER HT	205.000	205.000
1 EACH	D350-748-241TRN HEAT TREAT TO MIN 180 KSI (MIL-T-6736 OR AMS 2759-IC) SANDBLAST AFTER HT	205.000	205.000
1 EACH	D350-748-241TRN HEAT TREAT TO MIN 180 KSI (MIL-T-6736 OR AMS 2759-IC) SANDBLAST AFTER HT	205.000	205.000

ANY DISCREPANCIES MUST BE REPORTED WITHIN 10 DAYS AFTER RECEIPT.

We accept AMEX, Visa & Master Card



Heat Treating and Metallurgical Consulting

Subtotal	Cont:
Shipping/Handling	
Total Invoice Amount	Conti
Payment Received	
TOTAL	Conti

Visit our Web Site: <www.thomasregister.com/metlab/>

**Commercial Invoice:145**

Ship From: Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Canada
Tel # 1.613.632.5200
GST # RT101272607

Ship To: METLAB
1000 E Mermaid LN
Wyndmoor
PA, 19038 US

ATTN: Mark Podob
PH# 215 233 2600

Date: 27-Jul-12 **P.O. #** 17555

Ship Via: Day & Ross PPD **FOB:Origin**

Item	Part Number / Product Description	Tariff Class.	Quantity	Unit Price	Total
1	Crosstube D350-748-241	8803.20	10	\$ 1,250.00	\$ 12,500.00
2					
3					
4					

All Prices are in US Dollars

All of the above parts were made in Canada unless otherwise indicated
THIS IS A CUSTOMS INVOICE ONLY

Sub Total \$12,500.00

Total \$12,500.00

Amount Due: \$12,500.00

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Canada
Tel.: 1.613.632.5200
Fax: 1.613.632.1185
GST # RT101272607



1000 E. Mermaid Ln., Wyndmoor (Phila.) PA 19038-2093
Tel. (215) 233-2600 Fax (215) 233-5653

ORDER ACKNOWLEDGEMENT

613632/053

E-MAILED TO: _____ FAXED TO: _____

Rev A 5/10/10

QF4.722-01

CUSTOMER:	PO NUMBER:
Dart	P017535
DATE MATERIAL RECEIVED:	METLAB QUOTE NUMBER: <i>N/A</i> Or, MINIMUM STD ORDER(CHECK)
ESTIMATED SHIP DATE:	METLAB S.O. NUMBER: 73277

THANK YOU FOR YOUR ORDER. WE WILL MAKE OUR BEST EFFORT TO SHIP YOUR ORDER ON OR BEFORE THE ESTIMATED SHIP DATE SHOWN ABOVE. IF YOU NEED TO CONTACT US REGARDING THIS ORDER, PLEASE REFERENCE THE METLAB S.O. NUMBER SHOWN ABOVE.

QUOTATION MISSING? OK TO PROCESS WITHOUT *DA*

PURCHASE ORDER MISSING? OK TO START PROCESSING WITHOUT _____

NOTE THAT WE NEED THE FOLLOWING INFORMATION IN ORDER TO COMPLETE YOUR ORDER AND TO MEET THE PROMISED SHIP DATE:

TECHNICAL INFORMATION REQUIRED(LIST) : _____ ON HOLD : YES NO

OTHER INFORMATION OR CLARIFICATION: _____ ON HOLD : YES NO

RELEASED FOR PROCESSING BY: *DA* DATE: *8/8/12*

ACKNOWLEDGED BY: _____

TODAY'S DATE: _____

SHIPPED DATE: _____

THIS ORDER IS ACKNOWLEDGED WITH THE UNDERSTANDING THAT THE ABOVE PURCHASE ORDER IS IN ACCORDANCE WITH METLAB'S TERMS AND CONDITIONS OF SALE AS SUBMITTED AT THE TIME OF THE ABOVE QUOTATION.

Page 1 of 1

Process Owner: M. Podob
Management Representative: W. Miller

Approved by: J.G. Conybear



OTT 1983132 0

A standard linear barcode is positioned horizontally across the page, consisting of vertical black lines of varying widths on a white background.

NIR R-500048-5

Straight Bill of Lading - 1.866.DAY.ROSS

DATE MONTH DAY YEAR 07 27 12			LEVEL OF SERVICE <input type="checkbox"/> GENERAL	C.O.D AMOUNT _____ CURRENCY: <input type="checkbox"/> CDN <input type="checkbox"/> U.S.	Pick Up Information Telephone Number: _____ Contact Name: _____ Ready Date & Time: _____ Closing Time: _____
<input type="checkbox"/> PRIVATE RESIDENCE PICK UP <input type="checkbox"/> PRIVATE RESIDENCE DELIVERY <input type="checkbox"/> PALLETS BEING RETURNED <input type="checkbox"/> HAZARDOUS GOODS* <input type="checkbox"/> APPOINTMENT DELIVERY(DATE/TIME)			<input type="checkbox"/> TAILGATE PICK UP <input type="checkbox"/> HEATED SERVICE <input type="checkbox"/> TRADE SHOW PU <input type="checkbox"/> INBOND	<input type="checkbox"/> TAILGATE DELIVERY <input type="checkbox"/> TEMPERATURE CONTROL(TL ONLY) <input type="checkbox"/> TRADE SHOW DELIVERY	
<small>*this shipment contains dangerous goods as set out in the attached shipper's declaration</small>					
<small>SHIPPER</small> DAY & ROSS ACCT. NO. 03 8326 TEL NO. 6136325200 <small>SHIPPER'S NAME</small>			<small>CONSIGNEE</small> DAY & ROSS ACCT. NO. _____ <small>CONSIGNEE'S NAME</small> Mark Podob <small>Delivery Address</small> NetLab 1000 E. Mermaid Lane WYNDMOOR PA 19092		
<small>PICK UP ADDRESS</small> DART Aerospace 1270 Aberdeen St HAWKESBURY ON K0A 1K7			<small>CITY</small> CITY <small>PROV.</small> PROV. <small>COUNTRY</small> COUNTRY <small>POSTAL CODE</small> POSTAL CODE		
<small>METHOD OF PAYMENT</small>					
<input checked="" type="checkbox"/> PREPAID <input type="checkbox"/> CASH IN ADVANCE AMOUNT <input type="checkbox"/> CURRENCY: <input type="checkbox"/> CDN			<input type="checkbox"/> COLLECT <input type="checkbox"/> THIRD PARTY BILL TO ACCOUNT NUMBER <input type="checkbox"/> EXPIRY DATE		
<input type="checkbox"/> VISA <input type="checkbox"/> M.C. <input type="checkbox"/> AMX CARD NO. <input type="checkbox"/>			<small>OTHER BILL TO PARTICULARS</small> <small>BILL TO:</small> <small>BILL TO ADDRESS</small> <small>GST:</small> <small>CITY</small> CITY <small>PROV.</small> PROV. <small>COUNTRY</small> COUNTRY <small>POSTAL CODE</small> POSTAL CODE		
SPOT QUOTE NO.		ROUTING OR SPECIAL INSTRUCTIONS		MAXIMUM LIABILITY OF \$2.00/LB OR \$4.41/KG COMPUTED ON THE TOTAL ACTUAL WEIGHT UNLESS DECLARED VALUATION STATES OTHERWISE. PLEASE SEE ADDITIONAL TERMS AND CONDITIONS ON REVERSE.	
NO. OF PCS.	DESCRIPTION OF ARTICLES AND SPECIAL MARKS			WEIGHT <input checked="" type="checkbox"/> LBS <input type="checkbox"/> KGS	DECLARED VALUE <input type="checkbox"/> CDN. <input type="checkbox"/> U.S.
5	cardboard cartons			250	126Y13Y7
<small>ALL USED HOUSEHOLD GOODS AND PERSONAL EFFECTS SHIPPED AT SHIPPER'S RISK OF DAMAGE</small>					

The uniform TERMS OF CARRIAGE apply to this BILL OF LADING. (See Term and Condition No. 1)

NOTICE OF CLAIM must be submitted in writing within sixty (60) days of delivery. (See Term and Condition No. 2)

The carrier's maximum liability is limited by the TERM CONDITIONS of the Bill of Lading. (See Term and Co No. 5)

SHIPPER'S
REF. NO.

PO 17555

SHIPPER'S
SIGNATURE

Bugatti Ald.

BBBET

BRIGITTE Goldner

**PICK-UP
DATE**

07-27-2012

NO. OF
PCS.

DAY & ROSS
DRIVERS

Denis

PURCHASE
ORDER

270604

TRAILER

244

JSN 1275



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO17555

Purchase Order Date 7/27/2012

PO Print Date 7/27/2012

Page Number 1 of 3

Order From : VU-MET001

METLAB
1000 E. MERMAID LANE
WYNDMOOR, PA 19038
USA

Contact Name	Buyer	Brigitte Golden
Vendor Phone	Requisition Nbr	
Vendor Fax	Tax Resale Nbr	10127-2607
Vendor Account Nbr	Terms	Net 30
	Currency	USD
	FOB	Destination-Collect

Ship To : DART AEROSPACE LTD 1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Line Nbr	Reference Revision ID	Description/ Mfg ID	Req Date/ Taxable	Req Qty/ Unit of Measure	Ship Method	Unit Price	Extended Price
1	84674	D350-748-241TRN	10:40:00 AM Yes	1.00	Day & Ross ppd	\$205.0000	\$205.0000
2	84667	D350-748-241TRN	10:40:00 AM Yes	1.00	Day & Ross ppd	\$205.0000	\$205.0000
3	84670	D350-748-241TRN	10:40:00 AM Yes	1.00	Day & Ross ppd	\$205.0000	\$205.0000
4	84676	D350-748-241TRN	10:40:00 AM Yes	1.00	Day & Ross ppd	\$205.0000	\$205.0000

Special Inst: HEAT TREAT TO MIN 180 KSI
(MIL-T-6736 OR AMS 2759-1C)
SAND BALST TUBE AFTER HEAT
TREAT
CETIFICATIONS

Special Inst: SAME AS ABOVE

Special Inst: SAME AS ABOVE

PO Instructions: CROSSTUBE WILL BE LEAVING THIS AFTERNOON WITH DAY&ROSS TRACKING #
OTT19831320

No substitution or deviation without
consent.

Certificate of Conformity or Material
Certification required - YES NO

Change Nbr: 1

Change Date: 7/27/2012

SD-8-20



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO17555**

Purchase Order Date 7/27/2012
PO Print Date 7/27/2012

Page Number 2 of 3

Order From : VU-MET001

METLAB
1000 E. MERMAID LANE
WYNDMOOR, PA 19038
USA

Contact Name		Buyer	Brigitte Golden
Vendor Phone	215-233-2600	Requisition Nbr	
Vendor Fax	215-233-5653	Tax Resale Nbr	10127-2607
Vendor Account Nbr		Terms	Net 30
		Currency	USD
		FOB	Destination-Collect

Special Inst: SAME AS ABOVE

5 84659 D350-748-141TRN 10:40:00 AM ✓ 1.00 Day & Ross ppd \$205.0000 \$205.00
Yes

Special Inst: SAME AS ABOVE

6 86271 D350-748-141TRN 10:40:00 AM ✓ 1.00 Day & Ross ppd \$205.0000 \$205.00
Yes

Special Inst: SAME AS ABOVE

7 84666 D350-748-241TRN 10:40:00 AM ✓ 1.00 Day & Ross ppd \$205.0000 \$205.00
Yes

Special Inst: SAME AS ABOVE

8 84660 D350-748-141TRN 10:40:00 AM ✓ 1.00 Day & Ross ppd \$205.0000 \$205.00
Yes

Special Inst: SAME AS ABOVE

9 84675 D350-748-241TRN 10:40:00 AM ✓ 1.00 Day & Ross ppd \$205.0000 \$205.00
Yes

Special Inst: SAME AS ABOVE

10 86266 D350-748-141TRN 10:40:00 AM ✓ 1.00 Day & Ross ppd \$205.0000 \$205.00
Yes

SD 1288

PO Instructions: CROSSTUBE WILL BE LEAVING THIS AFTERNOON WITH DAY&ROSS TRACKING # OTT19831320

No substitution or deviation without consent.

Certificate of Conformity or Material Certification required - YES NO

Change Nbr: 1

Change Date: 7/27/2012



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO17555**

Purchase Order Date 7/27/2012
PO Print Date 7/27/2012

Page Number 3 of 3

Order From : VU-MET001

METLAB
1000 E. MERMAID LANE
WYNDMOOR, PA 19038
USA

Contact Name	Buyer	Brigitte Golden
Vendor Phone	Requisition Nbr	
Vendor Fax	Tax Resale Nbr	10127-2607
Vendor Account Nbr	Terms	Net 30
	Currency	USD
	FOB	Destination-Collect

Special Inst: SAME AS ABOVE

PO Total: \$2,050.00

PO Instructions: CROSSTUBE WILL BE LEAVING THIS AFTERNOON WITH DAY&ROSS TRACKING #
OTT19831320

Change Nbr: 1

Change Date: 7/27/2012

No substitution or deviation without consent.
Certificate of Conformity or Material Certification required - YES NO

Brigitte Golden

From: Mark Podob <mpodob@metlabheatheat.com>
Sent: Friday, July 27, 2012 11:21 AM
To: Dan Krackovic; Doris Funches; Eugene Roberts
Cc: Brigitte Golden
Subject: FW: PO17555 from Dart
Attachments: PO17555 METLAB.pdf

New P.O. from Dart Aerospace attached.
Thanks.

Mark Podob
Vice President, Marketing and Sales
Metlab
1000 E. Mermaid Lane
Wyndmoor, PA 19038
215-233-2600 Ext. 232
(F) 215-233-5653
mpodob@metlabheatheat.com

This message and any attachments are intended for the individual or entity named above. If you are not the intended recipient, please do not forward, copy, print, use or disclose this communication to others; also please notify the sender replying to this message and then delete it from your system.

From: Brigitte Golden [<mailto:bgolden@dartaero.com>]
Sent: Friday, July 27, 2012 11:19 AM
To: Mark Podob
Cc: 'Linda Lacelle'
Subject: PO17555 from Dart

Please find attached the PO
Thank You

From: Linda Lacelle [<mailto:llacelle@dartaero.com>]
Sent: Thursday, July 26, 2012 2:36 PM
To: mpodob@metlabheatheat.com
Cc: Brigitte Golden
Subject: more tubes

Hi Mark,
We will be shipping out 9 tubes tomorrow for heat treat. Another batch should follow end of next week. As always, I need these asap..
Thx!

Linda Lacelle
Production manager
Dart Aerospace



Manufacturing Inc.

772 MAIN STREET E., P.O. BOX 3,
HAWKESBURY, ONTARIO K6A 2R4

TEL: (613) 632-0921
FAX: (613) 632-2681

Packing Slip

Date	Page
Sep 24, 2012	1
Shipment Number	
SH005312	

Sold To:

DEEEN PACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7
CANADA

Ship To:

DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7
CANADA

Ref. No.	PO Number	Customer No.	Order No.	Ship Via	Order Date
	17979	DAR100	OR005146		September 24, 2012

Item Number	Description	Qty. Ordered	UOM	Qty. Shipped	Qty. Backord.
MS-1200-1	DART AEROSPACE - SANDBLAST 9 PIPES	9.00	EA	9.00	0.00

Comments:

Total weight:

Packed:

Total packages:

*** THANK YOU FOR YOUR BUSINESS ***